Washington State On-Site Wastewater Technical Review Committee

Minutes for the June 5-6, 2002Meeting

Approved on August 14, 2002 by Vote of the Committee

Washington State Department of
Health

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Note: The minutes periodically refer to "Items." Items are documents containing information on a subject being discussed. Items, with their descriptions/titles, are noted at the end of the minutes in the section entitled "List of Meeting Materials.

MEETING ATTENDEES

Members Present

1. Kevin Barry, Eastside Env. Hlth
2. Pam Denton, LHJ Field Staff
3. Scott Jones, Engineers
4. Melanie Kimsey, Dept of Ecology
5. Eric Knopf, Designers, Installers, O&M
6. Bob Monetta, Wash. Assoc. of Realtors
7. Bill Peacock, Public Sewer Utilities
8. Mike Vinatieri, Westside Env. Hlth

DOH Staff

1. Laura Benefield, Wastewater Mgt Program (Day 1)
2. John Eliasson, Wastewater Mgt Program
3. Selden Hall, Wastewater Mgt Program (Day 2)
4. Dave Lenning, TRC Coordinator

Guests Who Signed In or Presented

1. Stephen C. Wecker, Onsite Consulting Services
2. Peter Lombardi, Orenco Systems Inc. (Day 1)
3. Ken Moody, UV The Disinfector (Day 1)
4. Gifford Brown, Infiltrator Systems Inc.
5. Keith Grellner, Bremerton-Kitsap Health
6. Bill Cagle, OSI (Day 1)
7. Alex Mauck, EZ Drain, LLC (Day 2)
8. Glenn Helm, Glendon (last half of Day 2)

INTRODUCTION

Bob Monetta, Chair, called the meeting to order at approximately 10:25 a.m. on June 5, 2002 and at 8:15 am on June 6, 2002 in the meeting room of the BEST Inn in Ellensburg. The meeting on Day 1 began with brief introductions by each committee member, DOH staff, and the interested parties in the audience.

MINUTES

April 17-18, 2002 Meeting Minutes Adoption – By unanimous vote, the committee approved the April 17-18, 2002 TRC meeting minutes without changes.

ADMINISTRATIVE MATTERS

- Dave Lenning indicated that RDC members had offered a list of comments on the existing rules. A copy of these will be handed out during this meeting and discussed, along with the potential changes they may effect to the committee's current prioritized list of issues.
- The Department indicated they would get a copy of the new EPA manual out to each committee member as soon as possible.
- Dave Lenning indicated that the topic set for 8:30 am to 10:00 am on Day 2 would not be discussed, as the report was not ready. John Eliasson was finding much more information than he thought he would. This will be discussed at the next meeting.

SUMMARY OF TECHNICAL DISCUSSIONS

1. Technical Issue #5 – Wastewater Quality/Strength/Content

Laura discussed the questions/comments on the sheet she had prepared that had been mailed out to committee members. See **Item 1**. The minutes only include the questions/comments for which a vote was taken or some other important information was presented.

a. Question #1: Where are we now with high-strength wastewater? She summarized what WAC 246-272-11501(3) states about the designer's responsibilities for providing information to the local health officer. The required information includes "Information to establish the sewage's strength…"
b. Comment/Question #3: The TRC had recommended defining high-strength wastewater as wastewater strength greater than residential septic tank effluent.

This created a conflict with the current rule. Laura asked if this portion of the rule needed to be changed to reflect the committee's decision. The consensus result of the committee's discussion was, "Yes."

c. Question #5 asked, "How can we better define residential septic tank effluent? A list of potential parameters was given. A lot of discussion ensued. A couple key comments/questions were:
   - Bob Monetta asked if there wasn't something the committee could provide to help designers deal with the high strength situation.
   - Steve Wecker and Eric Knopf both stated that pH can have an adverse impact on BOD and other wastewater parameters and should be included in the definitions of residential and high strength waste.
   - Concerns were also raised that there were other potential parameters that could have an effect on receiving waters. Melanie Kimsey mentioned nitrogen.

d. After some lengthy discussion, the following consensus decisions were made:
   - In addition to specifying the quantity of wastewater for which they were designing a system, designers should also identify the quality of the wastewater. This could be as simple as saying it's residential wastewater or it's high strength wastewater.
   - After discussion of whether to define wastewater "strength" or some other term, the decision was to define "Wastewater Quality" as: "contents in the wastewater that include:
     - Specifically, CBOD, TSS and FOG
     - Other parameters that can adversely affect the treatment components. Examples are pH, temperature, DO
     - Other constituents that create concerns due to a specifically identified site sensitivity. Examples include fecal coliform, nitrogen, and phosphorus.
   - Then define residential and high strength wastewater, putting in values for the core parameters – CBOD, TSS and FOG. These numbers will be developed when the treatment standards are discussed.

e. Laura Benefield then continued on with the comments/questions from her handout. Again, only those questions resulting in discussion that asked new questions or resulted in specific decisions are noted in these minutes.
   - Question #6 – Should the definition of residential septic tank effluent include CBOD or BOD? The consensus decision was CBOD.
   - Question #9 – What parameters should be tested in a testing protocol?
     - Initially the committee decided to add fog to the core sampling parameters.
     - However, further discussion raised concern and requiring it in all technologies, including only those being tested for parameters such as nitrogen.
     - By a unanimous decision, the committee decided to recommend that FOG should be tested, not require it.
   - Question #10 – Is ETV adequate?
     - Questions were raised about the consistency of the sampling protocol, that is when and how a sample is taken. Keith Grellner

indicated his concerns that assurances for such consistency were not included.
        - The committee decided unanimously that the ETV protocol was adequate.
        - Bill Cagle mentioned another testing protocol with which he was familiar. He will get a copy to John Eliasson to see if it may be another alternative.
    - Question #11 – Should the protocol be in the rule? Yes by a unanimous decision.

f. Laura summarized the testing protocol for the ETV project, adding detail to that that was included in earlier discussion. See **Item #2**.

2. Technical Issue #1 – Treatment Standards 1 & 2

a. John Eliasson reviewed what was discussed at the last meeting.
b. John presented for discussion purposes a sheet entitled "Adjusted Proposed Treatment Standards." This, **Item #2**, was contained in an earlier mailing. This proposal contained adjustments to what Hoover had suggested in his work, which is located in Chapter 3 of the new USEPA manual.
    - John pointed out differences between the proposed Treatment Standard 2 for high loading rates and past TRC decisions (30/30 instead of 10/10).
    - John also mentioned that North Carolina also uses FOG.
    - Kevin Barry suggested that numbers needed to be placed in the nitrate column for proposed Treatment Standard 4.
    - Mike Vinatieri relayed his concerns about the real differences in effects on the biomat with effluents between 10/10 or 20/20 or 30/30. What should the limits be? We've spent many dollars putting systems in to meet standards without assurances that the standards were in fact being met. Dave Lenning indicated an e-mail he'd received from Jim Patterson, a RDC member, stated similar concerns.
    - After discussion, the committee decided it liked four levels of treatment standards.
    - Melanie Kimsey reminded the committee that ground water standards do exist and that all on-site systems are aquifer recharge systems.
    - The committee spent some time trying to decide what the numbers should be. After some time, Dave Lenning suggested that it may be easier to develop the numbers and specific parameters if a list of different sensitivities and system complexities could be developed. Such parameters would define the different control zones in Hoover' chart, that is included in **Item #2**. He suggested that John Eliasson, Steve Wecker and he try to develop such a list that evening and bring it back to the committee for discussion on Day 2. The committee agreed that should be attempted.

3. Technical Issue 7B – Residential flow rates

a. Laura Benefield presented information on the topic and asked the questions that were in her handout. See **Item #3**.
b. Question #1 – **Should daily flows for residential structures still be determined by number of bedrooms?** Yes, by a unanimous decision.

- Question #2 – **Is the quantity used for gallons per day per bedroom currently used appropriate?** (120 gallons/day/bedroom) Yes, by a unanimous decision.

c. Question #3 - **Should the "minimum" gpd design flow (240 gpd) be changed?** No, by a unanimous decision.
d. Question #5 - **Should there be a link between design flows and actual flows?** The committee unanimously decided: For residential flows: No, except for failures or remodels. For non-residential flows: Yes
e. Question #6 – **Does daily design flow equal peak flow, peak-peak, or what?** The committee unanimously decided: For residential flows – yes and no other peaking factors were needed. For non-residential flows: Peaking factors needed to be addressed.
f. Question #7 – **Should inflow and infiltration be considered?** By unanimous decision: No.
g. Question #8 – **Should there be a link between square footage and daily design flows?** By unanimous decision – No
h. Question #9 – **Should we consider a minimum square footage for a residential structure?** Bu unanimous decision – No.
i. Question #10 – **Should the information required for a permit be revised to include more information on flows?** As was decided earlier, in addition to flows (quantity) the design is to identify the "quality" also. This should be added to WAC 246-272-09001 (1)(d)(iii).
j. Question #11 – **Should there be a description of non-residential flows?** By unanimous decision – Yes.

4. Proportional Equivalent Downsizing for a textile filter product

a. John Eliasson explained why the TRC was looking at this by quickly going over the handouts that are included in **Item #4**. A model of a product had been tested at NSF. NSF will allow their certification to apply to larger units as long as things are proportionately consistent. However, they do not allow their certification to apply to a model smaller than the unit tested, even if there is proportional consistency.
b. John explained that the department had already listed the model (AS20) that had gone through the NSF Standard 40 testing process, but that the smaller AX15 could not be listed until a decision was made about the proportional downsizing issue. He introduced Bill Cagle, from Orenco Systems, Inc. (OSI).
c. Bill Cagle explained what had happened. The AX20 was developed for flows of 500 gallons. This was the unit tested. OSI had developed the AX15 to be able to handle smaller flows down to 400 gallons. In order to market this, he was requesting that authorization be given to list the AX15 also since everything was proportionately equal.
d. **Vote:** Scott Jones moved that the allowance (listing) for the AX 20 be given to the AX15 also. Kevin Barry provided the second. By an 8-0 vote, the request was granted.

Day 2, June 6, 2002

5. Technical Issue #2 - Hydraulic loading rates

a. John Eliasson briefly summarized the decisions that had been made for this issue. Except for the numbers on soil type 1, the chart is completed. No changes were suggested.
b. It was suggested that Dr. Craig Cogger and Lisa Palazzi be shown this and given an opportunity to comment.

6. Technical Issue #1 – Treatment Standards 1 & 2

a. John Eliasson and Dave Lenning explained that their attempt to define different control zones to help develop different treatment standards had not met success. They suggested that work be done on trying to develop the standards. Then work would be done to develop the different control zones and their definitions/descriptions.
b. There were some questions about CBOD. A request was made to get more information on the subject to the committee members. Possible sources included a report by Wayne Turnberg or the RS&Gs for ATUs or Packed Bed Filters.
c. Considerable discussions then ensued on treatment standards. Kevin Barry and Bob Monetta indicated they had some agreement with what was being proposed in the new USEPA manual, (on page 3-48 of chapter 3 that was mailed to all committee members or on page 8 of 20 in John Eliasson's report on Technical Issue #1. Following are the decisions that were made, all decisions being unanimous:

- **Treatment Standard 1 – Filtered residential septic tank effluent (tank has an outlet filter/screen)**
  - $BOD_5 \leq 200$ mg/l
  - TSS $\leq$ 80 mg/l
  - FOG $\leq$ 20 mg/l

- **Treatment Standard 2 – Highly treated waste or secondary treated effluent**
  - $BOD_5 \leq 30$ mg/l
  - TSS $\leq$ 30 mg/l
  - FOG $\leq$ 20 mg/l
  - Fecal coliform $\leq 10^4$ colonies/100 ml

- **Treatment Standard 3 – Tertiary treated effluent**
  - $BOD_5 \leq 10$ mg/l
  - TSS $\leq$ 10 mg/l
  - FOG $\leq$ 20 mg/l
  - Fecal coliform $\leq 10^4$ colonies/100 ml

- **Treatment Standard 4 – Bodily contact**
  - $BOD_5 \leq 10$ mg/l
  - TSS $\leq$ 10 mg/l
  - FOG $\leq$ 20 mg/l
  - Fecal coliform $\leq$ 200 colonies/100 ml

- **Treatment Standard 5N – Nitrogen**
  - Total N $\leq$ 5 mg/l

- **Treatment Standard 5P – Phosphorus**
  - Total P $\leq$ 2 mg/

- All parameters other than fecal coliform are 30-day averages. Fecal coliform are 30-day geometric means.

d. Key decisions made that affect other decisions
   - Residential septic tank effluent is defined as those parameters and values in Treatment Standard #1.
   - High strength waste effluent is defined as effluent with values higher than those defining residential septic tank effluent.
   - The BOD and TSS parameters set in the discussion of Technical Issue 4A (Reductions Due to Highly Treated Waste) were changed from 10/10 to 30/30.

e. Some of the points of discussion/consideration that occurred in making the preceding decisions were:
   - What should the FOG numbers be and should they even be part of the standards? Initially, the FOG values went down to 10 mg/l in treatment standards 2 through 4. Bill Peacock called his laboratory supervisor who reported that at 20 mg/l or less of FOG on residential flows, there would be problems in finding the FOG. The committee kept the FOG levels constant at 20 mg/l for all standards.
   - Why do we need to have N and/or P standards, or even fecal coliform values for all the standards? The committee decided to apply them only to the standards where they made sense.
   - Should there be a standard for reuse, such as Hoover suggests in the chart in the USEPA manual? Dave will get copies of the state wastewater reuse standards to the committee members, if there are helpful numbers. As of now, there is no standard that will be developed. Hopefully, standards for any reuse for residential development will be contained in the existing reuse standards.
   - All the parameters that make up the standards need to be defined in the rule.
   - Table 3 on page 7 of 20 in John's report on this issue was used to compare committee thinking with what has been done elsewhere.

f. John Eliasson will take these standards and attempt to start defining different control zones in which these standards can apply. It is hoped that some of the geographic differences in Washington State can be covered by application of the standards.

g. **To do list from this topic:**
   - Information on CBOD to committee members

- Information from wastewater reuse standards to see if existing parameters and values can be used single-family residential uses.
- Definitions of control zones and initial application of the standards to them

7. **Technical Issue #4, Pathway 2 – Disposal Component Reductions due to special features and applications of drainfield products**
    a. Selden Hall discussed the contents of the handout for this issue (**Item #5**)
    b. He indicated that the decisions made on April 18, 2002 at the last TRC meeting were not valid since, by committee procedures, a quorum did not exist.
    c. Decisions on chambers:
        - Should reductions be allowed? Yes-8 No-0
        - What should the maximum reductions be? 20% to 40%, depending on soil type, just like it is now by an 8 to 0 vote. It was clarified that the effective infiltrative surface used in sizing was that area between the interior sidewalls of the chambers.
        - Should 100% initial and reserve absorption areas be required? Yes-7 No-1 (Scott Jones)
        - Should additional O&M be required above and beyond the blanket requirement? (This question was changed from "Should O&M be required?) Yes-0, No-8
    d. Alex Mauk suggested that the Department develop a sizing chart for all gravelless products, just like they did for EZ Drain.
    e. Decision on gravelless pipe:
        - Should reductions be allowed? Yes-0 No-8 (consistent with current position)
    f. Discussion on gravel substitute/replacement products, specifically EZ Flow/EZ Drain:
        - Eric Knopf asked about the differences between gravel and expanded polystyrene (EPS) aggregate. Alex Mauk indicated the primary difference was that the EPS did not contain fines like all gravels will.
        - **Vote:** Kevin Barry moved that we maintain the status quo for this product (that is as per the Department's memo to Environmental Health Directors on September 5, 2001). This memo is found on pages 18 and 19 of Selden Hall's handout. Second by Mike Vinatieri. Yes-8 No-0
    g. **The committee has spent significant time again in discussing and making recommendations for sizing reductions on gravelless products. It cautions the Department in adding these to the rules.**

8. **Presentation of Glendon RS&G**
    a. Selden Hall presented the new RS&G for the Glendon Biofilter.
    b. He summarized changes in the new document from the current one developed in 1996.
    c. He estimates the effective date of this RS&G will be July 1, 2002 depending on when the Department receives "trade secrets" from Glendon.
    d. There was some discussion on the viability of monitoring ports. There had been some experience when the liquid level inside a port in a Glendon unit was higher than in the sand.
    e. Selden indicated that, at the request of Glendon, the specifications on the cover sand would be removed from the document.

f. Eric Knopf questioned whether O&M needed to be provided routinely twice/year. He suggested twice for the first year and annually thereafter. The rest of the committee agreed. Selden Hall will see that is considered for inclusion into the RS&G.
g. Pam Denton indicated there is a potential conflict between the monitoring requirements in the proposed RS&G and those in the WAC, especially those in Table VI repairs.
h. **Vote:** Eric Knopf moved that the RS&G be adopted as per noted amendments. Second by Scott Jones. Yes–7 No-0

9. Dave Lenning briefly discussed what was happening with the RDC. Following is a summary of his comments:
    a. There would be a brief presentation of TRC recommendations/conclusions at each RDC meeting.
    b. A number of RDC members had evaluated the existing rule and developed a list of items that needed revision in their opinion. The Department had taken all the issues for the technical sessions in the rule (location, soil and site requirements, design, installation, subdivisions) and placed them on a list of issues for the TRC to look at and respond. Dave will be meeting with others in the Department to make sure which items should be sent to the TRC and which will be retained by the RDC or someone else in the Department.
    c. Dave handed out the list of issues given to the TRC. Attached was a list of the prioritized issues as developed by the TRC. Dave had done an initial scanning of what this meant for the TRC. Some of the issues are already identified on the committee's own list, others will be added to existing issues, others will have to be dealt with separately, and others will not be handled by the committee. This document is **Item #6.**

10. The balance of the meeting was spent developing question/decision trees for upcoming technical issues.

a. **Technical Issue #9 – Table IV issues**
    i. Depth of cover
    ii. Type of cover
    iii. Maximum trench depth
    iv. Does the treatment standard take away the method of distribution?
    v. Does degree of saturation change vertical separation requirements? Groundwater as opposed to limiting layer
    vi. What constitutes native, undisturbed soil?
    vii. In looking at tighter soil types that will limit air movement into soil, consider ventilation.
    viii. When is mottling really mottling?
    ix. Should root structure be considered in determining water tables?
    x. Use of curtain drains - require winter observation if used to increase vertical separation
    xi. Gravity systems in type 1 soils over protected aquifers
    xii. Is 6-inch trench depth adequate for installation?

xiii. Address how treatment standards will be dealt with regards to soil depth - account for risk assessment
xiv. Incorporate resource value into table

b. **Technical Issue #10A – Media specs**
   i. How much coarse media can we use?
   ii. Percent fines allowable in specs for gravel and ASTM C33?
   iii. Definition of pea gravel
   iv. What is clean gravel? Need gravel specs.
   v. What other media are available?

c. **Technical Issue #10B – Performance based**
   i. Should we require continuing NSF certification?
   ii. Except for experimental systems, we don't want the technology to prove itself after approval. We want the technology to be proven in advance.
   iii. There needs to be a process for innovative non-proprietary systems at the local level.

d. **Technical Issue #12 – Failing system issues**
   i. Combine with Technical Issue #20.
   ii. Does the presence of dye alone indicate presence of a failure or do we also need a positive bacteriological test result?
   iii. Cesspools are failures?
   iv. Seepage pits are failures?
   v. Should a sampling protocol for a repair of a failing system be placed in rule?
   vi. Table VI only goes up to 100 feet for horizontal setbacks. Should we have something for situations with horizontal setbacks greater than 100 feet but with little or no vertical separation?

e. **Technical Issue 24B – Wastewater tanks**
   i. Should we have risers to the surface for septic tanks?
   ii. Should flexible couplers be required between tanks?
   iii. What testing, if any, should be done to assure watertightness?
   iv. Inlet-outlet gasket standards?
   v. Proper bedding/compaction below inflow and outflow pipes?
   vi. Proper bedding/compaction below tanks?
   vii. Riser standards – diameter, what we need access to (# and location of risers), security for lid, watertight and/or gas tight seals?
   viii. Effluent filters – attached growth geocomposites
   ix. Issues on holding tanks are true for pump chambers?
   x. Elimination of using grout to seal around "poly" risers?
   xi. Risers on d-boxes for gravity systems?

ADMINISTRATIVE/OTHER ISSUES

1. The next meeting will be at the same location in Ellensburg on August 14-15, 2002
2. The meeting was adjourned

MEETING MATERIALS[1]

Administrative/Other Materials

Meeting Agenda - June 5-6, 2002

Item #1 – Questions for Technical Issue #5 & Summary – NSF International , 2000, Protocol for the Verification of Wastewater Treatment Technologies, April 2000 – submitted by Laura Benefield

Item #2 – Adjusted Proposed Treatment Standards & Treatment performance standards in various control zones – submitted by John Eliasson

Item #3 - Rule Development Committee Issue Research Report on Issue TI 7B, Residential Flow rates – submitted by Laura Benefield

Item #4 – Needed Decisions on an AdvanTex model – consists of a memo to the TRC, a letter to John Eliasson from William Cagle of OSI, & Some information on the AdvanTex units – submitted by John Eliasson

Item #5 – Report on Issue T4, Pathway 2 – submitted by Selden Hall

Item #6 – List of issues identified by RDC members, the prioritized list developed by the TRC, and the item by item list of RDC issues and how they impact the TRC's list as developed by Dave Lenning

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[1] All listed meeting materials are maintained by the Department of Health in a meeting manual entitled*: Technical Review Committee Meeting, June 5-6, 2002*. For further information, please contact the Department of Health's Wastewater Management Program at (360) 236-3062.